In re Patent Application of:
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In the Claims:

1. (Currently amended) A mobile ad hoc network (MANET) comprising:

a plurality of mobile nodes each comprising a wireless communications device and a controller connected thereto;

said controller operating in accordance with a multi-layer protocol hierarchy for,

at an upper protocol layer, establishing a quality-of-service (QoS) threshold from among a plurality of different possible QoS thresholds based upon a type of given data to be transmitted to at least one destination node;

at at least one intermediate protocol layer below the upper protocol layer, selecting at least one route for transmitting data to the at least one destination mobile node based upon the QoS threshold, and determining whether a QoS metric for the selected route falls below the QoS threshold; and

at a lower protocol layer below the at least one intermediate protocol layer, cooperating with said wireless communications device to

determine the QoS metric for the at least one selected route,

transmit the given data to the at least one destination mobile node via the at least one selected route, and

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adjust signal transmission power based upon a determination that the QoS metric has fallen below the QoS threshold.

2. (Original) The MANET of Claim 1 wherein, at the lower protocol layer, said controller also cooperates with said wireless communications device to adjust signal transmission gain in a desired direction based upon a determination that the QoS metric has fallen below the QoS threshold.

3. (Original) The MANET of Claim 1 wherein said wireless communications device provides an adjustable signal transmission pattern; and wherein, at the lower protocol layer, said controller also cooperates with said wireless communications device to adjust the signal transmission pattern based upon a determination that the QoS metric has fallen below the QoS threshold.

4. (Original) The MANET of Claim 1 wherein, at the at least one intermediate protocol layer, said controller encodes data prior to transmission; and wherein said controller also adjusts an amount of error correction coding based upon a determination that the QoS metric has fallen below the QoS threshold.

5. (Original) The MANET of Claim 1 wherein, at the

lower protocol layer, said controller cooperates with said wireless communications device to modulate the data using a first modulation technique if the QoS metric is greater than or equal to the QoS threshold, and otherwise using a second modulation technique.

6. (Original) The MANET of Claim 1 wherein, at the lower protocol layer, said controller cooperates with said wireless communications device to transmit data at a data rate; and wherein said controller also cooperates with said wireless communications device to adjust the data rate based upon a determination that the QoS metric has fallen below the QoS threshold.

7. (Original) The MANET of Claim 1 wherein the upper protocol layer comprises an application layer.

8. (Original) The MANET of Claim 1 wherein the at least one intermediate protocol layer comprises at least one of a session layer, a transport layer, a network layer, and a radio transport layer.

9. (Original) The MANET of Claim 1 wherein the lower protocol layer comprises a physical layer.

10. (Original) The MANET of Claim 1 wherein the QoS threshold is based upon at least one of available bandwidth,

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error rate, end-to-end delay, end-to-end delay variation, hop count, expected path durability, and priority.

11.   (Currently amended) A mobile ad hoc network (MANET) comprising:

a plurality of mobile nodes each comprising a wireless communications device and a controller connected thereto;

said controller operating in accordance with a multi-layer protocol hierarchy for,

at an upper protocol layer, establishing a quality-of-service (QoS) threshold <u>from among a plurality of different possible QoS thresholds based upon a type of given data to be transmitted to at least one destination node</u>;

at at least one intermediate protocol layer below the upper protocol layer, selecting at least one route for transmitting data to <u>the</u> at least one destination mobile node based upon the QoS threshold, and determining whether a QoS metric for the selected route falls below the QoS threshold; and

at a lower protocol layer below the at least one intermediate protocol layer, cooperating with said wireless communications device to

determine the QoS metric for the at least one selected route,

transmit <u>the given</u> data to the at least one
destination mobile node via the at least one
selected route, and

adjust signal transmission gain in a desired
direction based upon a determination that the QoS
metric has fallen below the QoS threshold.

12.   (Original) The MANET of Claim 11 wherein said
wireless communications device provides an adjustable signal
transmission pattern; and wherein, at the lower protocol layer,
said controller also cooperates with said wireless communications
device to adjust the signal transmission pattern based upon a
determination that the QoS metric has fallen below the QoS
threshold.

13.   (Original) The MANET of Claim 11 wherein, at the
at least one intermediate protocol layer, said controller encodes
data prior to transmission; and wherein said controller also
adjusts an amount of encoding based upon a determination that the
QoS metric has fallen below the QoS threshold.

14.   (Original) The MANET of Claim 11 wherein, at the
lower protocol layer, said controller cooperates with said
wireless communications device to modulate the data using a first
modulation technique if the QoS metric is greater than or equal
to the QoS threshold, and otherwise using a second modulation
technique.

15. (Original) The MANET of Claim 11 wherein, at the lower protocol layer, said controller cooperates with said wireless communications device to transmit data at a data rate; and wherein said controller also cooperates with said wireless communications device to adjust the data rate based upon a determination that the QoS metric has fallen below the QoS threshold.

16. (Original) The MANET of Claim 11 wherein the upper protocol layer comprises an application layer.

17. (Original) The MANET of Claim 11 wherein the at least one intermediate protocol layer comprises at least one of a session layer, a transport layer, a network layer, and a radio transport layer.

18. (Original) The MANET of Claim 11 wherein the lower protocol layer comprises a physical layer.

19. (Original) The MANET of Claim 11 wherein the QoS threshold is based upon at least one of available bandwidth, error rate, end-to-end delay, end-to-end delay variation, hop count, expected path durability, and priority.

20. (Currently amended) A mobile ad hoc network (MANET) comprising:

a plurality of mobile nodes each comprising a wireless communications device and a controller connected thereto, said wireless communications device providing an adjustable signal transmission pattern, and said controller operating in accordance with a multi-layer protocol hierarchy for,

at an upper protocol layer, establishing a quality-of-service (QoS) threshold <u>from among a plurality of different possible QoS thresholds based upon a type of given data to be transmitted to at least one destination node</u>;

at at least one intermediate protocol layer below the upper protocol layer, selecting at least one route for transmitting data to <u>the</u> at least one destination mobile node based upon the QoS threshold, and determining whether a QoS metric for the selected route falls below the QoS threshold; and

at a lower protocol layer below the at least one intermediate protocol layer, cooperating with said wireless communications device to

determine the QoS metric for the at least one selected route,

transmit <u>the given</u> data to the at least one destination mobile node via the at least one selected route, and

adjust the signal transmission pattern based upon a determination that the QoS metric has fallen below the QoS threshold.

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21. (Original) The MANET of Claim 20 wherein, at the at least one intermediate protocol layer, said controller encodes data prior to transmission; and wherein said controller also adjusts an amount of encoding based upon a determination that the QoS metric has fallen below the QoS threshold.

22. (Original) The MANET of Claim 20 wherein, at the lower protocol layer, said controller cooperates with said wireless communications device to modulate the data using a first modulation technique if the QoS metric is greater than or equal to the QoS threshold, and otherwise using a second modulation technique.

23. (Original) The MANET of Claim 20 wherein, at the lower protocol layer, said controller cooperates with said wireless communications device to transmit data at a data rate; and wherein said controller also cooperates with said wireless communications device to adjust the data rate based upon a determination that the QoS metric has fallen below the QoS threshold.

24. (Original) The MANET of Claim 20 wherein the upper protocol layer comprises an application layer.

25. (Original) The MANET of Claim 20 wherein the at least one intermediate protocol layer comprises at least one of a

session layer, a transport layer, a network layer, and a radio transport layer.

26. (Original) The MANET of Claim 20 wherein the lower protocol layer comprises a physical layer.

27. (Original) The MANET of Claim 20 wherein the QoS threshold is based upon at least one of available bandwidth, error rate, end-to-end delay, end-to-end delay variation, hop count, expected path durability, and priority.

28. (Currently amended) A method for operating a mobile node in a mobile ad hoc network (MANET), comprising a plurality of mobile nodes, in accordance with a multi-layer protocol hierarchy, the mobile node comprising a wireless communications device, the method comprising:

at an upper protocol layer, establishing a quality-of-service (QoS) threshold from among a plurality of different possible QoS thresholds based upon a type of given data to be transmitted to at least one destination node;

at at least one intermediate protocol layer below the upper protocol layer, selecting at least one route for transmitting data to the at least one destination mobile node based upon the QoS threshold, and determining whether a QoS metric for the selected route falls below the QoS threshold; and

at a lower protocol layer below the at least one intermediate protocol layer,

using the wireless communications device to
determine the QoS metric for the at least one selected
route,

causing the wireless communications device to
adjust signal transmission power based upon a
determination that the QoS metric has fallen below the
QoS threshold, and

causing the wireless communications device to
transmit <u>the given</u> data to the at least one destination
mobile node via the at least one selected route.

29. (Original) The method of Claim 28 further
comprising, at the lower protocol layer, causing the wireless
communications device to also adjust signal transmission gain in
a desired direction based upon a determination that the QoS
metric has fallen below the QoS threshold.

30. (Original) The method of Claim 28 wherein the
wireless communications device provides an adjustable signal
transmission pattern; and further comprising, at the lower
protocol layer, causing the wireless communications device to
also adjust the signal transmission pattern based upon a
determination that the QoS metric has fallen below the QoS
threshold.

31. (Original) The method of Claim 28 further
comprising, at the at least one intermediate protocol layer:

encoding data prior to transmission; and

adjusting an amount of encoding based upon a determination that the QoS metric has fallen below the QoS threshold.

32.   (Original) The method of Claim 28 further comprising, at the lower protocol layer, causing the wireless communications device to modulate the data using a first modulation technique if the QoS metric is greater than or equal to the QoS threshold, and otherwise using a second modulation technique.

33.   (Original) The method of Claim 28 wherein the wireless communications device transmits data at a data rate; and further comprising causing the wireless communications device to adjust the data rate at the lower protocol layer based upon a determination that the QoS metric has fallen below the QoS threshold.

34.   (Currently amended) A method for operating a mobile node in a mobile ad hoc network (MANET), comprising a plurality of mobile nodes, in accordance with a multi-layer protocol hierarchy, the mobile node comprising a wireless communications device, the method comprising:

at an upper protocol layer, establishing a quality-of-service (QoS) threshold <u>from among a plurality of different</u>

possible QoS thresholds based upon a type of given data to be
transmitted to at least one destination node;

at at least one intermediate protocol layer below the
upper protocol layer, selecting at least one route for
transmitting data to the at least one destination mobile node
based upon the QoS threshold, and determining whether a QoS
metric for the selected route falls below the QoS threshold; and

at a lower protocol layer below the at least one
intermediate protocol layer,

using the wireless communications device to
determine the QoS metric for the at least one selected
route,

causing the wireless communications device to
adjust signal transmission gain in a desired direction
based upon a determination that the QoS metric has
fallen below the QoS threshold, and

causing the wireless communications device to
transmit the given data to the at least one destination
mobile node via the at least one selected route.

35.   (Original) The method of Claim 34 wherein the
wireless communications device provides an adjustable signal
transmission pattern; and further comprising, at the lower
protocol layer, causing the wireless communications device to
also adjust the signal transmission pattern based upon a
determination that the QoS metric has fallen below the QoS
threshold.

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36. (Original) The method of Claim 34 further comprising, at the at least one intermediate protocol layer:

encoding data prior to transmission; and

adjusting an amount of encoding based upon a determination that the QoS metric has fallen below the QoS threshold.

37. (Original) The method of Claim 34 further comprising, at the lower protocol layer, causing the wireless communications device to modulate the data using a first modulation technique if the QoS metric is greater than or equal to the QoS threshold, and otherwise using a second modulation technique.

38. (Original) The method of Claim 34 wherein the wireless communications device transmits data at a data rate; and further comprising causing the wireless communications device to adjust the data rate at the lower protocol layer based upon a determination that the QoS metric has fallen below the QoS threshold.

39. (Currently amended) A method for operating a mobile node in a mobile ad hoc network (MANET), comprising a plurality of mobile nodes, in accordance with a multi-layer protocol hierarchy, the mobile node comprising a wireless communications device providing an adjustable signal transmission

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pattern, the method comprising:

at an upper protocol layer, establishing a quality-of-service (QoS) threshold <u>from among a plurality of different possible QoS thresholds based upon a type of given data to be transmitted to at least one destination node</u> for data transmission;

at at least one intermediate protocol layer below the upper protocol layer, selecting at least one route for transmitting data to <u>the</u> at least one destination mobile node based upon the QoS threshold, and determining whether a QoS metric for the selected route falls below the QoS threshold; and

at a lower protocol layer below the at least one intermediate protocol layer,

using the wireless communications device to determine the QoS metric for the at least one selected route,

causing the wireless communications device to adjust the signal transmission pattern based upon a determination that the QoS metric has fallen below the QoS threshold, and

causing the wireless communications device to transmit <u>the given</u> data to the at least one destination mobile node via the at least one selected route.

40. (Original) The method of Claim 39 further comprising, at the at least one intermediate protocol layer:

encoding data prior to transmission; and

adjusting an amount of encoding based upon a determination that the QoS metric has fallen below the QoS threshold.

41.   (Original) The method of Claim 39 further comprising, at the lower protocol layer, causing the wireless communications device to modulate the data using a first modulation technique if the QoS metric is greater than or equal to the QoS threshold, and otherwise using a second modulation technique.

42.   (Original) The method of Claim 39 wherein the wireless communications device transmits data at a data rate; and further comprising causing the wireless communications device to adjust the data rate at the lower protocol layer based upon a determination that the QoS metric has fallen below the QoS threshold.